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Before the Senate Commerce, Science and Transportation Committee
December 6, 2001

Good morning, Mr. Chairman, and distinguished Senators. I am Bernard Robertson, Senior Vice President of DaimlerChrysler with responsibility for Technology and Regulatory Affairs. I appreciate the opportunity to provide comments to the Committee about improving the fuel economy of light duty vehicles, the Corporate Average Fuel Economy program and the recent study of the program by the National Academy of Sciences (NAS).

The tragic events of September 11th have again raised debate on the need for the Nation to have a sound energy policy, one that provides for energy security and independence and that contains elements of energy production as well as conservation. The congressional debate over the balance between increased production and conservation of energy, and the most effective means to achieve each, has often been heated. At DaimlerChrysler, we recognize **our** responsibility to minimize any potential adverse effects of our products, whether they be in the area of safety, air quality, or fuel consumption. In the latter area, we believe the best way to reduce petroleum consumption in the automotive sector is to focus on technological advances in energy efficiency and for government and industry to send the correct signals to the market to value that increased efficiency. Our billions of dollars of investment in advanced technology vehicles is evidence of our strong and continued commitment in this area. DaimlerChrysler is a technology leader, with research and development that encompasses fuel cells, hybrid drivetrains, cylinder de-activation, lightweight materials and advanced, clean diesels.

DaimlerChrysler manufactures a full line of products, including passenger cars, minivans, sport utility vehicles, and pick-up trucks. One hundred years of experience in the auto industry have taught us that America is a mobile society, that vehicle ownership is associated with personal freedom, that industry competes fiercely for customers, and that only those companies that satisfy market demands, while simultaneously supporting shareholder value, will succeed in the long term. Customers want vehicles that have an exciting design, high quality, durability, an affordable price that translates to good value for the money spent, and the utility to meet **all** the consumer's transportation needs--be they transporting the family, hauling materials for home improvement, or moving one's child into a college dormitory. Our customers want safe vehicles, a certain level of performance and handling, and somewhere on the list of desirable attributes is fuel economy.

The NAS study specifically refers to the importance of market demand. However, while Americans clearly desire to reduce their gasoline expenditures, fuel economy, as a new vehicle attribute, even with recent spikes in fuel prices and the subsequent events to the September 11th tragedy, tends to rank low compared to the vehicle characteristics just mentioned. Thus, while we offer a range of fuel economy in our vehicles, consumers tend to select other options/vehicles at the expense of fuel economy. Indeed, they often spend more money--in terms of choices of engines, transmissions, and other features-- that result in **lower** fuel economy than provided by the base vehicles. In a competitive free market, we can not dictate how the customer sets his or her priorities and selects a specific vehicle with unique attributes. All we can do is offer vehicle choices that hopefully will draw a new vehicle buyer to our product rather than those of a competitor. Therefore, any government mandated fuel economy program must recognize that manufacturers by themselves can not achieve a specific level of fleet fuel economy and must consider these aspects of the customer purchase decision in order to be successful.

Similarly, how people actually use their vehicle will have a role in determining the fuel consumption of the vehicle. Excessive speeds, jack-rabbit starts, poor vehicle maintenance, unnecessary cargo, and the number of miles traveled, all influence the amount of gasoline consumed. Consumers are not irrational when it comes to fuel consumption. When gasoline prices rose last year, consumers traveled less, the first time in 20 years that total vehicle-miles of travel decreased. But while the use of gasoline in existing vehicles declines when prices rise, the price of gasoline has not reached levels that dramatically affect the purchase decisions of new vehicle consumers. Indeed, today's low prices signal to the consumer that gasoline is a commodity that can be consumed in quantity and has relatively little national value. The consumer ***must*** play a more prominent role if reduced fuel consumption is to become a national priority.

One aspect of fuel economy within the auto manufacturers' control is the technology we incorporate in our vehicles. This is where we compete vigorously, and you see evidence of such a contest today for advanced technology vehicles, specifically hybrid power trains and fuel cell vehicles. We are all working hard to bring these *revolutionary* advances to market at an affordable price as we're enticed by their 20-100 percent better fuel efficiency, but *evolutionary* changes to conventional internal combustion engines and transmissions also hold great and more near-term promise. There is no question that the fuel efficiency of individual new cars and trucks will increase. The industry achieved significant gains during the past twenty five years, increasing both passenger car and light truck fuel efficiency--the amount of gasoline needed to move a given weight of vehicle a specified distance--by two percent per year on average. This trend will continue in the future. The challenge being discussed today is whether the customer will decide to apply the efficiency gains to fuel economy or to attributes such as safety or other features.

The National Academy of Sciences report highlighted the need for providing industry adequate leadtime. The NAS recognized the complexities in bringing new technologies to market, and

portrayed the adverse financial, employment, competitive, and safety effects, if sufficient leadtime is not provided. I would like to concentrate today on this point, explaining how new fuel-efficient technology is developed, demonstrated, brought to production, and spread across the fleet. In addition, my testimony will address the NAS report's discussion of the capital constraints on the simultaneous adaptation of numerous technologies.

The mantra of 'speed to market' is heard loud and clear within the walls of the DaimlerChrysler Technology Center. Unfortunately, sometimes the way this is portrayed in the media is not aligned with the business and engineering world. A 12-18 month new product cycle time and a customer order filled within 2 days of placement on the internet are exciting possibilities, but far from the world that exists today. Starting with an "off-the-shelf" powertrain, the development cycle for a new vehicle will likely start several years before launch. If the vehicle is to include a new engine and transmission, for instance the all-new 4.7L V-8 engine and multi-speed automatic transmission in our new Jeep Grand Cherokee, the development of these powertrain components begins two years earlier, stretching the full system development time even longer.

Finally, the product, for example, the Jeep Grand Cherokee, is launched with this new fuel efficient powertrain combination that achieves 10 percent better fuel economy than the vehicle it replaced, even though significant emissions, safety and product content features were added which increased the weight of the vehicle. We invested more than $2.5 billion to develop this new powertrain and to build the plant in Detroit, Michigan to manufacture it. Not only was significant capital required for this venture, but also tremendous human resources had to be devoted to the effort. To get the best return on this investment, the same family of engine/transmission combinations will be adapted to other products consistent with their renewal cycles, everything from the new Jeep Liberty, to the Dodge Durango sport utility and the Dodge Ram pickup truck. This rollout to the other products can easily take another 4-5 years. And, the financial capability and the staffing limitations of the manufacturer can limit this rate of technology diffusion. Hence, the best case timeline requires about 10 years of development for new technology to reach **all** the products of a full line manufacturer.

Two other issues immediately arise. What if the technology is not proven and still must be invented and refined? And, is there commercial acceptance of the technology? A case in point is the fuel cell. Although the technology has been around for decades in spaceship and satellite applications, its use in powering vehicles remains in development with significant challenges remaining for affordability, range, fueling infrastructure, service, and repair, to name a few. DaimlerChrysler has several demonstration fuel cell projects that serve to advance our knowledge on this emerging vehicle technology and test the market acceptance, such as the California Fuel Cell Partnership, and a multinational demonstration of fuel cell powered urban buses.

In this case, where the invention of new technologies is needed, the timeframe is stretched considerably. Inventing is not amenable to a specific timetable, but let's assume a system can be invented in three years. The next two years will involve adapting the technology to a specific

product. A year or two before production will be needed for testing the product design. Spreading this technology across a product line will take several more years. Several recent examples, including electronic fuel injection and air bags, demonstrate that 10-15 years is required to introduce a feature that customers demand.

Having adequate leadtime to develop new technologies and products is not our only timing concern. Given the billions of dollars required to launch new products, it is essential that a manufacturer be able to recoup those investments. We have recently invested $3 billion in St. Louis, Missouri, to launch a new version of our popular Dodge Ram Pick-up. About $2 billion was invested to convert a plant in Newark, Delaware, to build the Dodge Durango. The NAS report recognized that fuel economy standards that required premature retirement of engines, drivetrains, or entire vehicles, could have serious adverse effects on companies' employment and financial conditions. At DaimlerChrysler, we have, over the past year, launched two new versions of our most popular vehicles—the minivan and our Dodge Ram pickup truck-- both of which are manufactured in Missouri. We would expect these vehicle programs to have a life of about 8 years, during which their essential design and performance will not change significantly. New fuel economy standards that do not consider such investments will have the severe adverse financial and employment effects cited by the Academy.

The Committee's invitation letter also asked that alternatives to the current CAFE program be addressed. The CAFE program is not the most effective means to reduce petroleum consumption. As an earlier NAS study (1992) makes clear: the CAFE program has "defects that warrant careful examination, and [chief among these] is the fact that the CAFE system…has been increasingly at odds with market signals…[and thus] manufacturers are required to sell vehicles with higher fuel economy regardless of consumer interest in purchasing such vehicles." This can best be illustrated by the situation in Europe and Japan, where gasoline prices—essentially due to government taxes---are nearly three times higher than in the U.S. As a result, small cars have two to three times the market share that they have in the U.S. and through more flexible policies regarding diesel engines (which have 20-40 percent higher fuel economy than an equivalent-sized gasoline engine), diesel penetration has risen to 30 percent in Europe, and is expected to increase further, compared to less than one percent here.

Nevertheless, with all its flaws, CAFE is a program that we understand and we have made long-term product decisions to comply with the program's standards. While we and others have examined alternatives to the current CAFE system, they turn out to be either politically unacceptable or have significant "unknowns" or problems that prevent us from endorsing them at this time. While a weight-based approach to fuel economy has been much discussed, we concur with the NAS report which notes that "additional analysis will be required" before it can be seriously viewed as a viable alternative to CAFE. It is premature to enact legislation in this area given the uncertainties on how such a program would work and what the competitive and fuel savings effects might be.

Likewise, I wish to point out that because of the complexity of the fuel economy issue and its

tradeoffs of fuel savings with employment in the U.S. auto industry, differential competitive effects, and possible serious safety consequences, the Academy refrained from advocating a "CAFE number." While there are a wide range of fuel economy numbers in the report, the Committee wisely, we believe, stated that they "are NOT recommended fuel economy goals…" and NAS Committee Chairman Portney, in testimony at a joint hearing of this Committee and the Energy and Natural Resources Committee, stated that "…the committee does not recommend whether, or by how much, government should raise standards."

Nevertheless, I also note some problems with the methodology and potential mis-application of information in certain sections of the NAS report. For example, on engine gas exchange efficiency losses, the report suggests that an efficiency improvement of up to 39 percent is available. Yet the total loss in efficiency through these processes in a typical gasoline engine is less than half this value. These and other issues lead to overestimates of improvements in fuel economy cited in the report and we have discussed them with the Academy in a public meeting this past October.

In addition, several of the fuel economy bills and proposals we have seen in the Congress cause us great concern. We have seen proposals that would require truck CAFE to increase by 30 percent in the next five years and the combined car/truck fleet to achieve a 39 mpg CAFE within 10 years. We can find no scientific basis for such numbers; nor are they contained within the NAS report that the Congress commissioned.

The complexity of any fuel economy program was adequately highlighted in the NAS report and leads to our belief that future CAFE standards can best be addressed by the legislation already enacted by the Congress--the Energy Policy and Conservation Act--which created the CAFE program. This legislation, enacted in 1975, established a regulatory process to address the level and form of the standards. We believe that the National Highway Traffic Safety Administration is poised to consider new light truck CAFE standards, once Congress lifts the prohibition on such rulemaking. Those standards, by law, must be set at the "maximum feasible" level. We believe the regulatory process is the best venue to address fuel economy issues. It is an open process in which everyone from manufacturers, to the environmental community, to Members of Congress, can make their views known. And, we believe NHTSA has the experience to best balance the conflicting tradeoffs addressed in the NAS report. DaimlerChrysler looks forward to working with NHTSA to establish the "maximum feasible" fuel economy levels for future trucks.

In closing, DaimlerChrysler takes pride in being a leader in technological innovation and we are committed to introducing new technologies that minimize the environmental impact of our vehicles. We believe the best way to reduce petroleum consumption is to focus on technological advances—such as in the areas of hybrid and fuel cell power sources—and through sending the correct signals to consumers on the value of energy. If customers do not demand high fuel economy, then any technology developed by the auto industry and any CAFE standard and timing established by regulation will not be optimally effective in reducing fuel

consumption. Given all that we know about industry timelines, capital requirements, technology development, and other considerations, no CAFE or other fuel consumption program will work in 2001, 2011, or 2021 if the customer is not part of the equation, and values the attribute of fuel economy.

Thank you for your attention and I would be pleased to answer any questions you may have.